UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,602	09/28/2006	Shuji Ikegami	4633-0184PUS1	4872

2292 7590 07/11/2008

BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER	
DUONG, THO V	
ART UNIT	PAPER NUMBER
3744	

NOTIFICATION DATE	DELIVERY MODE
07/11/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/594,602	IKEGAMI ET AL.	
	Examiner	Art Unit	
	Tho v. Duong	3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 March 1988*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's amendment filed 3/6/08 is acknowledged. Claims 1-9 are pending.

Response to Arguments

Applicant's arguments that Fujinami does not disclose metallic frame with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. Furthermore, applicant's argument that the frame (3) of Fujinami is not surrounded the heat exchanger has been very carefully considered but is not found to be persuasive. Fujinami clearly discloses (figure 2) that the frame (3) surrounds the heat exchanger. Regarding applicant's comment that the conventional tube plate frame work does not surround the heat exchanger, applicant is suggested to see Yoho (US 5,582,241, figure 1) or Moore (US 1,900,865).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3 and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujinami et al. (JP 2004085013) in view of Yokota et al. (JP 072655649) and Moore (US 1,900,865). Fujinami discloses (figures 1-2) a heat exchanger comprising a fin set including a plurality of fins (12) arranged parallel to each other with an interval (fin pitch) of 1.6 to 2.0 mm; a framework (3) arranged to surround end faces of the fin set in the arrangement direction of the fins and end faces of the fin set in the lengthwise direction of the fin; a serpentine heat transfer

tubes (11) having straight part penetrating the fin set in the arrangement direction of the fins and U-shaped parts protruding out of the framework; a connecting tube for connecting the heat transfer tubes (11) with a refrigerant pipe. Fujimara does not disclose that the frame is made of metal. Moore discloses (figure 1 and column 2, lines 75-90) a coiled heat exchanger that has a frame (22) surrounding the heat exchanger, wherein the frame (22) is made of metal sheet for a purpose supporting the heat exchanger and increasing the heat transfer surface area of the heat exchange since metal is a conductive material. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Moore's teaching in Fujimara's device for a purpose of supporting the heat exchanger and increasing the heat transfer surface area of the heat exchange since metal is a conductive material. Fujinama does not disclose adsorbents are supported on the surfaces of the fin set, the framework, the heat transfer tube and the connector tube. Yokota (figures 1-2) teaches of coating absorbing material (3) on an entire surface of heat exchanger components such as tube (1) and fins (2) for a purpose of dehumidifying air passing through the heat exchanger. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Yokota's teaching for a purpose of dehumidifying air passing through the heat exchanger. With regards to the subject matter of the adsorbents coated on the framework and the connector tube, it would have been obvious to one ordinary skill in the art to try to further coat the adsorbents on the framework and the connector tube as well as the tube and the fins (as taught by Yokota) in order to further dehumidify the air that is in contact with the framework and the connector tubes so that the overall dehumidifying capacity of the heat exchanger is enhanced. Regarding claim 6, "Expressions relating the apparatus to contents thereof during an intended operation are of no

significance in determining patentability of the apparatus claim." Ex parte Thibault 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." Inre Young, 75 F.2d *>996<, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto,312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). In this instant case, the air with an intended velocity passing through the heat exchanger structure being claim does not impart patentability to the claims since the combination device of Fujinami and Yokota still reads on the claimed heat exchanger structure. Regarding claims 7 and 9, the method of forming the device "immersing…in a slurry mixed with the adsorbent" and "determined by a relationship between the number of fan, fan efficiency and fan volume" is not germane to the issue of the patentability of the device itself. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). In this case, the final product in the product by process claim is obvious from the combination device of Fujinami in view of Moore and Vondebein, the claim is unpatentable even though the prior heat exchanger was made by different method of coating or thickness of the coating is not determined by number of fan, fan efficiency or fan volume.

Claims 1-3 and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujinami et al. (JP 2004085013) in view of Vondobein (DE 32226502A). Fujinami discloses

(figures 1-2) a heat exchanger comprising a fin set including a plurality of fins (12) arranged parallel to each other with an interval (fin pitch) of 1.6 to 2.0 mm; a framework (3) arranged to surround end faces of the fin set in the arrangement direction of the fins and end faces of the fin set in the lengthwise direction of the fin; a serpentine heat transfer tubes (11) having straight part penetrating the fin set in the arrangement direction of the fins and U-shaped parts protruding out of the framework; a connecting tube for connecting the heat transfer tubes (11) with a refrigerant pipe. and Moore (US 1,900,865). Fujinami discloses (figures 1-2) a heat exchanger comprising a fin set including a plurality of fins (12) arranged parallel to each other with an interval (fin pitch) of 1.6 to 2.0 mm; a framework (3) arranged to surround end faces of the fin set in the arrangement direction of the fins and end faces of the fin set in the lengthwise direction of the fin; a serpentine heat transfer tubes (11) having straight part penetrating the fin set in the arrangement direction of the fins and U-shaped parts protruding out of the framework; a connecting tube for connecting the heat transfer tubes (11) with a refrigerant pipe. Fujimara does not disclose that the frame is made of metal. Moore discloses (figure 1 and column 2, lines 75-90) a coiled heat exchanger that has a frame (22) surrounding the heat exchanger, wherein the frame (22) is made of metal sheet for a purpose supporting the heat exchanger and increasing the heat transfer surface area of the heat exchange since metal is a conductive material. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Moore's teaching in Fujimara's device for a purpose of supporting the heat exchanger and increasing the heat transfer surface area of the heat exchange since metal is a conductive material. Fujinama does not disclose adsorbents are supported on the surfaces of the fin set, the framework, the heat transfer tube and the connector tube. Vondobein (figures 1-2) teaches of

coating absorbing material on an entire surface of heat exchanger components such as coil (12) fins (14) and spacers (22) for a purpose of dehumidifying air passing through the heat exchanger. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Vondobein's teaching for a purpose of dehumidifying air passing through the heat exchanger. With regards to the subject matter of the adsorbents coated on the framework and the connector tube, it would have been obvious to one ordinary skill in the art to try to further coat the adsorbents on the framework and the connector tube, which are also heat exchanger components in contact with air, in order to further dehumidify the air that is in contact with the framework and the connector tubes so that the overall dehumidifying capacity of the heat exchanger is enhanced. Regarding claim 6, "Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." Ex parte Thibault 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." Inre Young, 75 F.2d *>996<, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto,312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). In this instant case, the air with an intended velocity passing through the heat exchanger structure being claim does not impart patentability to the claims since the combination device of Fujinami and Vondobein still reads on the claimed heat exchanger structure. Regarding claims 7 and 9, the method of forming the device "immersing…in a slurry mixed with the adsorbent" and "determined by a relationship between the number of fan, fan efficiency and fan volume" is not germane to the issue of the patentability of the device itself. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patent-

ability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). In this case, the final product in the product by process claim is obvious from the combination device of Fujinami in view of Moore and Vondebein, the claim is unpatentable even though the prior heat exchanger was made by different method of coating or thickness of the coating is not determined by number of fan, fan efficiency or fan volume.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujinami and Moore and Yokota or Vondabein as applied to claim 1 above, and further in view of Dunne. Fujinami and Yokota substantially disclose all of applicant's claimed invention as discussed above except the thickness of the adsorbent coating on fin. Dunne discloses (figures 1-2 and column 7, lines 1-5) a heat exchanger that has an adsorbent layer coating on a fin with a thickness of 230 microns for a purpose of not causing bridging of the adsorbent to occur between fins of the finned tube. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Dunne's teaching in the combination device of Fujinami and Yokota for a purpose of not causing bridging of the adsorbent to occur between fins of the finned tube.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yoho (US 5,582, 241) discloses a heat exchanger.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho v. Duong whose telephone number is 571-272-4793. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tyler J. Cheryl can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tho v Duong/
Primary Examiner, Art Unit 3744